DOCUMENT RESUME

ED 231 553 RC 005 111

AUTHOR Nimnicht, Glendon P.; Partridge, Arthur R.
TITLE Small Schools Can Be Good Schools.
INSTITUTION Colorado State Coll., Greeley. Educational Planning Service.
SPONS AGENCY Ford Foundation, New York, N.Y.
PUB DATE 62
NOTE 99p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Community Involvement; Correspondence Study; Curriculum Enrichment; *Educational Quality; *Educational Strategies; *Flexible Scheduling; High Schools; Home Study; Instructional Innovation; Multigraded Classes; Multipurpose Classrooms; National Surveys; Peer Teaching; Shared Facilities; *Shared Services; *Small Schools; *Teaching Methods; Team Teaching

ABSTRACT

Thirty-seven small high schools in 22 states, ranging in enrollment from 27 to 328 students in the top 4 grades, were visited to obtain information on the outstanding aspects of their educational program, teaching methods, or physical facilities. Information was also obtained from six teachers and one administrator from seven schools in the Rocky Mountain Area Project, who described their programs and teaching methods and made recommendations on the kinds of facilities which adequately provided for such programs and procedures. This report describes the various devices and teaching methods the schools used to overcome some of their weaknesses and to capitalize on some of their strengths in the subject areas of English, social studies, foreign languages, science, mathematics, art, music, business, homemaking, industrial arts, vocational agriculture, and physical education. These methods include multiple-class teaching, flexible scheduling, shared services and personnel, honors programs, team teaching, tape-recorded class lectures and reports, correspondence courses, college students and local citizens as teachers, peer teaching, work-practice programs, home projects, and use of community facilities. A list of the schools visited is appended. (NQA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED231553

SMALL SCHOOLS CAN BE GOOD SCHOOLS

BY

Glendon P. Nimnicht

Arthur R. Partridge

Educational Planning Service

Colorado State College

Greeley, Colorado

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Arthur R. Partridge
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

1962

RC 005111

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☑ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

SMALL SCHOOLS CAN BE GOOD SCHOOLS

by

Glendon P. Nimnicht

Arthur R. Partridge

Copyright: 1962
Glendon P. Nimnicht
Arthur R. Partridge

TABLE OF CONTENTS

Preface	i
Introduction	1
English	7
Social Studies	24
Foreign Languages	30
Science	36
Mathematics	41
Art	46
Music	50
Business	54
Homemaking	59
Industrial Arts	64
Vocational Agriculture	72
Physical Education	80
Summary	86
Appendix	90

PREFACE

In an attempt to aid school districts in planning better small high schools, the Educational Facilities Laboratories, Inc., of the Ford Foundation made a grant of money to the Educational Planning Service of Colorado State College to study the problem. This grant has supported a national study of small high schools.

We originally planned to visit schools with enrollments of 150 or less; but as the study progressed, it became obvious that some slightly larger schools were doing some things that had worthwhile implications for much smaller schools. In the final analysis the largest school that was visited was Ottawa Hills High School with an enrollment in the top four grades of 328. The second largest school was East Lansing High School, Ludlowville, New York, which had an enrollment of 250. With the exception of these two, the schools visited ranged in size from 215 in the top four grades down to 27 in Death Valley High School, Shoshone, California. Thirty-seven schools were visited in 22 states. (See the Appendix for a list of the schools that were visited.)

In selecting the schools to visit we looked for both those schools that had taken advantage of their smallness, as reflected in the scope of the educational program and the teaching methods employed, and those small schools which had developed suitable educational facilities. The first step in the selection process was to mail out over six hundred questionnaires to individuals throughout the United States who were in a position to identify outstanding small high schools: personnel of all state departments of education, individuals in colleges and universities who were known to have contact with small schools, selected school administrators, county superintendents, and graduate students from various parts of the United States who were on the campus at Colorado State College during the summer of 1960. The graduate students were asked not only to identify outstanding small schools but also to list individuals in their regions of the United States who could identify outstanding schools.

The criteria we asked the above individuals to follow in suggesting schools included:

(1) The high school enrolls fewer than 150 pupils.

2 (2) The high school has taken advantage of its small size and low teacher-pupil ratio in the utilization of the teaching staff.

(3) The school has taken advantage of its small size in flexibility of scheduling and programming.

(4) The school has developed physical facilities that are adequate and suitable for its size and program.

(5) Duplication of the school's accomplishments is possible by another school district with limited or moderate financial resources.

The respondents were told that it was not necessary that a school meet all of the stated criteria, but we requested that each respondent identify the criteria by which he identified a particular school as "outstanding." We identified a total of two hundred and sixty-five schools in this manner. In addition to these, some schools that had taken part in either the Catskill Area Project in Small School Design or the Rocky Mountain Area Project were included in the study.

Next we mailed a questionnaire to all of the schools that had been suggested to us. This questionnaire was designed around the five statements of criteria mentioned above, seeking answers to the following questions: Is the teaching staff being utilized in any unusual ways such as team teaching or multiple group teaching? What part of the instructional program is particularly outstanding? How comprehensive is the educational program? Are any special or unusual methods used in scheduling classes or grouping students for learning? Are there any outstanding features of the physical facilities of the school?

Of the two hundred sixty-five questionnaires that were mailed to schools, one hundred eighty-five were returned. At least three members of the staff read each questionnaire and made judgments on the desirability of visiting each school. The evaluators agreed to a considerable extent on the schools that seemed to be the most promising to visit. It is very possible that some outstanding schools were excluded from the study as a result of this process, but with four or five exceptions the schools that were visited were outstanding in at least some aspect of their program, teaching methods, or physical facilities. Some of the schools were uniformally superior; but since our purpose was not to select _the_ outstanding small schools in the country, no attempt was made to place the schools in any order of excellence. We are convinced that we did visit _some_ of the outstanding small schools in the United States.

In addition to the information gathered from the schools which we visited, help was obtained from six teachers and one administrator from seven schools in the Rocky Mountain Area Project. These individuals were invited to attend a two-day conference where they described their programs and teaching methods and made recommendations on the kinds of facilities which would adequately provide for such programs and procedures.

7

In the report that follows we have taken the best features of all the schools that were visited to illustrate outstanding educational programs and teaching methods.

INTRODUCTION

As of 1958, there were 24,226 public high schools (grades 7 through 12) in the United States. Of those, 53 per cent had fewer than 300 students; their combined enrollments accounted for 17 per cent of the total high school enrollment. Our concern is the continuing improvement of those schools. The solution to this problem does not lie in the simple alternatives of either closing small schools or tolerating them. We cannot close all of them, and the United States cannot afford the luxury of tolerating any inferior school. Seldom is there uniform agreement on educational matters among serious students of education, but the one area where agreement is almost universal is that many small schools can be improved through elimination, i.e., their consolidation into larger schools.

In the state of Nebraska,in 1958 for example, 65 per cent of the high schools had less than 100 students, 87 per cent had less than 200 students, and 94 per cent had less than 300 students. Because of greater sparcity of population, such states as Wyoming and Nevada have even a higher proportion of "small" schools. Wyoming has a population density of three persons per square mile, Nevada only 1.5, and Nebraska 17.3. In such situations, probably the first move toward improvement would be reasonable consolidation of small high schools. Even after all reasonable consolidation has taken place, however, many small high schools will continue to exist. Meanwhile we must be concerned with helping all small schools to be as good as they can be. The one-fifth of our nation's high school students who attend them deserve the highest quality education possible.

As a result of a nationwide study of good small high schools, the Educational Planning Service of Colorado State College has recently published a report[1] sponsored by Educational Facilities Laboratories on the kinds of buildings and other equipment that will facilitate good education in small high schools. This report focuses on the educational program itself--and on methods of improving it through better organization and better teaching.

In considering program and methods of instruction, the first and most obvious fact is that given enough money a small high school can provide an educational program that parallels that of a larger high school in course offerings and teaching methods. This is of course impossible for most small schools, and furthermore, the desirability of such an approach is questionable because small schools which merely attempt to imitate the larger schools fail to take advantage of the strengths of smallness.

The schools that have taken advantage of their size have done so in several ways. One instructional method that has special promise is multiple-class teaching--that is, offering more than one subject to two or more groups of students in the same room at the same time. This may have started out as an expediency, but as the reader will observe throughout the report, such a teaching method if properly organized has some real educational advantages. The use of this method has enabled teachers actually to provide individual instruction.

---

[1] Glendon P. Nimnicht and Arthur R. Partridge, Designs for Small High Schools, Educational Planning Service, Colorado State College, Greeley, Colorado.

Other decided advantages of small schools are the informal relationships that can exist and the ease of arranging for more flexibility than is usually possible in a larger school. This is demonstrated in many ways. When a science teacher has one or two outstanding students a year, he can easily arrange for those students to use the laboratory at unscheduled times. The teacher can take a half dozen students on field trips that would be extremely difficult to arrange for large groups. When a teacher desires to try something new in a small school, he can receive approval from the decision-making authority and launch his experimental program within a relatively short period of time. For such a teacher, the problems of "coordination" and "articulation"--often created by the very bigness which we so often espouse, do not loom very significant. Smallness also facilitates flexibility in scheduling. Given a qualified staff to teach the subjects that are offered, the individual student's program can be individually planned to suit his needs and interests. When the staff is not fully prepared to offer all courses which students need, correspondence courses can supplement the school's curriculum. To say that scheduling is an advantage in a small high school may come as a surprise to many administrators in small schools, but with multiple class teachings, a small school can have a very flexible schedule. Of course the small school may still need to alternate some courses, such as chemistry with physics and American history with world history. Nevertheless, with multiple class teaching such subjects as art, industrial arts, mechanical drawing, and homemaking can be scheduled several times a day, thus permitting the individual student greater lattitude in his choice of subjects. The schedule can also be flexible in terms of the length of the periods, the number of periods per day, and the number of time per week that a given class is held. Indeed, the problem of adjusting the schedule to the student, rather than the students to the schedule, coupled with rigidity of thinking about the "Carnegie unit," plagues even the largest of our high schools. The small high school, with its built-in flexibility, can pioneer in its solution.

In addition to taking advantage of their smallness, some small schools are finding ways to overcome some of the weaknesses of being small. One of these weaknesses is a limited staff to offer a comprehensive program, limited both in numbers and in areas of subject matter preparation. A combination of methods are being used to overcome this limitation. One method is for several small schools to share services of such people as music and art teachers. In some instances a limited number of students in an advanced course are transported from one school to another for special instruction one or two days each week. Instead of adding more staff members to the faculty, schools can give more time to their existing facilities by extending the contract year for a month to allow time for careful preparation (e.g., for teaching multiple classes) and by providing lay people as instructional aides to type papers, prepare teaching aids or equipment, grade papers, supervise study halls, and keep records.

Through the use of some of these devices and teaching methods, small high schools can have comprehensive programs. Simla, Colorado, for example, offered the following courses in 1960-61 for grades eight through twelve:

English - five units (eighth through twelfth)

Mathematics - eighth grade mathematics, review mathematics, first and second year algebra, geometry, trigonometry (1/2 year), and mathematical analysis (1/2 year)

Social Studies - eighth grade social studies, American history, civics, world history, American problems, and an experimental course in economics and sociology

Science - chemistry, biology, conservation, eighth grade science

Foreign Language - first and second year Spanish

Homemaking - eighth grade homemaking and three years of advanced homemaking

Business Education - typing, shorthand, and bookkeeping

Industrial Arts - three years of shop courses and mechanical drawing

In addition, the school offered driver training and vocal and instrumental music. Three students who had missed physics the previous year were taking it by correspondence. Supplementing this with supervised independent laboratory work. One teacher had the seventh and eighth grade students for physical education two days a week. This program was offered in a five period day (the sixth period was an activity period) by seven full-time teachers and one half-time music teacher, and every teacher had at least one preparation period. The multiple classes that made such a program possible included homemaking one and two, shorthand and bookkeeping, Spanish one and two, industrial arts two and three plus mechanical drawing, algebra two and trigonometry. A teacher supervised the physics correspondence course during the period he was teaching chemistry.

In addition to the regular program, Simla, in cooperation with two other small schools in the area, conducted a weekly seminar for their able and interested students. This seminar met one night a week with college or university faculty members leading the discussion on topics that were planned according to a general theme that extended through the school year. "Great ideas that have shaped the thoughts of mankind" was the theme used for the seminar in 1960-61.

Although Simla's program is more comprehensive than one would find in most small high schools, other small high schools we visited were able to offer equally comprehensive programs with numerically limited staffs.

The following sections of the report deal with the various subject matter areas of the curriculum, but the reader should remember the inherent relationship of each area to the whole school program. By proper organization of the whole, multiple classes in a given field can increase flexibility in scheduling by permitting more students at different grade levels to pursue a particular interest at the same time.

ENGLISH

The high school English teacher generally faces three fundamental instructional problems: How can he help students improve basic communication skills--e.g., listening, speaking, penmanship, vocabulary, mechanics of expression, spelling, reading speed and comprehension? How can he instill in students both the desire and the ability to read literature of all types with understanding and appreciation to the joint ends of greater knowledge and personal satisfaction? How can he help students to formulate significant ideas and to express them effectively?

Although experts in the language arts field might suggest an infinite variety of specific behavioral objectives, the above three questions describe the scope of most high school English programs. How a teacher will solve these three problems will depend partly upon his own approach to students, partly upon the ability level of the students themselves, and largely upon the availability of appropriate facilities, equipment, and materials. Seldom if ever, however, will these solutions depend significantly upon the size of the school. The teacher in the small high school *can* very effectively perform these three instructional tasks, as the following program descriptions show.

Basic Skills

The fundamental problem is how to help each student continue to practice the several communication skills so that he can advance beyond his present level of performance and at the same time avoid the boredom which students experience when they simply cover the same ground they have covered before. The teacher can make one of three assumptions in attacking this problem: first, that all students in high school may profitably drill on the same skills at the same time, much as professional athletes spend a certain amount of time in drill activities; second, that all students of a given grade classification have similar needs for practice drills; and third, that irrespective of chronological age or grade placement, students can be grouped for effective drill and practice in terms of individual needs.

The first assumption ignores the fact of individual differences; and none of the schools visited had programs based upon this assumption, although such programs could operate very simply. They would simply require a designated period during which all students would be exposed simultaneously to instructions for practice. During these practice sessions students could meet in one large room (a cafeteria, for example) or in the several classrooms of the building; in the latter case, instructions would be given over a public address system.

Most programs apparently depend upon the second assumption--e. g., that all students in English III need the same kind of experience in speaking or listening or the same kind of drill in mechanics of expression at the same time. Such programs present no problems of scheduling or grouping, although they do create acute problems of motivation and meeting individual differences. The programs described below recognize the validity of the third assumption and reflect different approaches to the same desired end--providing practice and drill in terms of the individual student's weaknesses and need for improvement.

Mechanics of Expression

The devotion of a large part of the English program to the improvement of this skill (the phase commonly called "composition") does injustice to the student who has already learned the "rules of grammar" and frequently emphasizes those rules which most students do not violate in practice anyway. Thus many students become bored with English. Probably by the time students reach high school, they can improve their styles of expression with minimum attention to formal grammar and maximum attention to purposeful and functional expression of ideas. The teachers in Vernonia, for example, require students to do a lot of writing in English classes; students who demonstrate deficiencies in either content or mechanics of expression must revise their papers until the instructors are satisfied with the total product. Mechanical errors are thus treated on an individual basis unless students are making common errors, in which case instructors discuss these errors with the class as a whole. In any event, the presentation of formal rules of grammar takes place in a functional situation: how can a particular rule improve the effectiveness of the communication of ideas? Thus students gain practice in applying these rules whenever they engage in purposeful communication.

The English teacher at Port Gibson takes fundamentally the same approach to improving the use of formal grammar. Some class time is spent in formal drill on the mechanics of expression, but during such periods those students who feel that they have no need for this type of drill are excused to go to the library for individual reading activities. All students are held responsible for applying correctly the formal rules of grammar, but students are permitted to exercise their own judgment in determining need for formal study. The teacher's prerogative of requiring students to remain in class if their written performance indicates a need provides a built-in corrective for student errors of judgment.

Spelling

In the majority of cases, perhaps, English teachers give some attention to spelling when they correct English themes, without offering systematic drill in spelling new words. Yet a properly conceived spelling program not only can correct spelling errors but can also assist the student in expanding his vocabulary. The Margaretville (New York) Central School[1] has a unique approach to this problem, one which requires little of the teacher's time. The teacher does give occasional check tests to entire English classes, but the actual drill or practice occurs outside of class, requiring no teacher supervision. The individual student plans his own practice on the basis of his particular deficiencies.

The school has converted a "juke box" for educational use by adding eight earphones. (Thus that number of students can practice the same material at the same time.) The drill material is transcribed on records for use in this machine, and thus teachers are freed from the necessity to dictate spelling words for each drill period. Furthermore, students can use the machine to practice any material appropriate for them at the times when they need such practice. The use of this procedure is based upon the principle of immediate reinforcement. The same effect could be achieved with a tape recorder and earphones.

---

[1] Although this school was not visited in this project, it is a participant in The Catskill Area Project in Small School Design.

Basically, each word is presented in this manner: it is spoken, then used in an appropriate sentence, then spoken again. After a pause during which the student writes the word, the word is spelled out and the student again writes the word from this correct spelling in an adjoining column. The student then goes through a similar procedure, recording his responses on a different sheet of paper: the word is spoken and he writes it; the word is spelled out again and he writes it again in an adjoining column. This second procedure is especially valuable for the student who missed the word the first time. Teachers can check the papers of the students and give them special help on words which cause particular difficulty. For most students and for most words, however, the practice drills are self-directed by the students themselves. This sort of device--actually a type of audio learning-machine --could be readily adapted to practice drills on other types of skills where learning depends upon the principle of immediate reinforcement.

Reading

The high school teacher simultaneously faces two problems related to reading. Some students, on the one hand, seek to improve upon already acceptable levels of performance with respect to reading vocabulary or to speed of reading comprehension; on the other hand, some have yet to learn the basic reading skills (word recognition, idea recognition, visual span, for example) which they failed to master in the elementary grades. Meeting either or both problems requires a unique learning situation for each student and considerable practice of the deficient skill. Furthermore, an effective reading improvement program depends upon accurate diagnosis of the individual student's deficiencies.

Greenfield concentrates its efforts on the latter problem, i.e., teaching the basic skills to the non-reader or slow reader. Those students in the English class who require this type of instruction meet with a teacher in the study hall while the rest of the class reports to the library for a study period. The "remedial" students are divided into reading groups resembling the organization of a first grade class; while the teacher works with one group, the other groups practice silent reading. Class recitation characterizes the activity of this program.

Other schools take a more systematic approach to improvement of basic reading skills. Vernonia, for example, has made extensive use of the reading laboratory materials developed by Science Research Associates. These kits permit students to advance at their own pace, although the use of these kits has been integrated into the regular class program of the lower-ability ninth-grade students. (This groups is enrolled in a combined English I-World Cultures course scheduled in a two-hour block of time.)

In contrast, the teachers at Powers believe they get better results from the SRA materials by using them intensively at two widely spaced periods during the year rather than on a weekly basis throughout the year. Accordingly, during a four-week period near the beginning of the school year, and a similar period near the end of the year, all students use the kit four days each week.

New London identifies students who need special instruction in reading by means of a diagnostic reading survey. Such students (normally six or seven during any given year) are scheduled into one reading period each day during which they use the materials of the SRA kits and also the Scott-Foresman Easy Reading Series. In addition to using these materials on an individual basis, students also learn to improve associated visual skills by means of tachistoscopic projections from an overhead projector and the stereoscope developed by the Keystone View Company as part of its Leavell Language Development Service. Although the regular English classes also participate in occasional group exercises designed to improve reading speed, the primary emphasis of the reading-development program in New London is on individual and segregated instruction.

In the six-year high school at Jenkintown all seventh and eighth grade students take part in the developmental reading program which stresses vocabulary building, increased reading comprehension, and in some cases more rapid reading speed. Students are not taken out of regular classes for this program, but instead they meet during the club or activity period. The teacher in charge has no other responsibilities during this daily period. Students with the most severe problems participate two or three days each week, while the average or above average reader in these two grades takes part only one day each week. Ninth grade students who have poor reading habits or limited vocabularies are retained in the program. In other words, the number of days of practice per week and the number of years in the program depend on both the seriousness of the individual student's problem and his rate of progress. This junior-high level developmental reading program makes full use of the SRA individual practice materials up through the college level, and students who need to do so also practice with the SRA accelerator and other devices on an individual basis.

Some senior high school students at Jenkintown, by election, also participate in the program during the club period. Because the program operates during an activity period, and because virtually all activity is conducted on an individual basis, the grouping of students--either by age, grade, or ability--presents no problem: students can schedule this activity in a way most convenient for them. In addition, all senior-high English classes (grades 10-12) require one unit of a developmental reading program which concentrates on improving both rate of reading comprehension and vocabulary, using the SRA materials at the high school and college levels. The board of education maintains a summer reading program for the convenience of all students who desire to improve their reading performance.

Ottawa Hills has a K-12 reading program planned on the basis of extensive diagnostic testing of all students. At the high school level, those tenth-grade students with special problems receive one semester of special reading instruction. This instruction takes place outside the regular English classes, and students receive no academic credit for it. Only twelve to fifteen students are enrolled in each of the reading laboratory periods, during which they make extensive use of SRA reading materials. At the ninth grade level, students use various mechanical devices for increasing eye span, and subsequent testing in the eleventh grade identifies those who need additional remedial work. The improvement of reading skills is not limited to the below average student, although this type of student is required to take part.

One general lesson emerges from the experience of these several schools which offer a variety of programs: the improvement of basic skills requires individualized instruction and individualized practice. One teacher can most effectively supervise such a program when groups are small. Many students can profitably use such devices as accelerators, tachistoscopes, and stereoscopes, and therefore one laboratory--designed to accommodate small groups and individual practice--should be set aside for this program. The identification of student needs and the planning of suitable specific learning experiences require thorough diagnostic testing. Materials and equipment which enhance such programs, indeed which enable them to accomplish their basic purposes, are in abundant supply. Their effective use does not depend upon the size of the school.

Reading for Appreciation (Literature)

The fact that reading for appreciation is here treated distinctly from expression of ideas in no way implies that the authors favor the typical division of high school English classes into one semester of "literature" and one semester of "composition." On the contrary, meaningful composition must be about ideas, and literature provides perhaps the student's most fertile source of ideas about which to compose. Hence, in planning effective learning experiences, the English teacher must appropriately interweave these two facets of the total English program. Nevertheless, students obviously will not read and write at the same time, and therefore the problem of "teaching literature" merits separate attention.

From the standpoint of the learner, reading serves two ends: first, it enables the reader to gain useful knowledge, and second, it can provide immense personal satisfaction. To fully accomplish these two purposes, the reader must possess the ability to read a variety of kinds of literature (this implies a variety of reading skills) as well as the ability to appraise the literature he reads. To state the obvious, however, before he will use these abilities, he must have the desire to read. The problem confronting the "teacher of literature" is therefore clear: the teacher must create situations in which the learner both experiences the value of reading and improves the skills necessary for profitable reading. The programs described below demonstrate how some schools have met these problems.

The Abraham Kellogg Central School in New York[1] has developed a course in American Literature which parallels the course in American history offered in that school. Annotated reading lists and units planned for the literature course relate directly to the historical periods and societal problems treated in the history course. Such careful correlation hopefully accomplishes its central purpose: to help students realize that development of American literature mirrors the problems and changes which America has experienced. This in turn leads to the larger revelation that literature can enhance our understanding of the world in which we live and that it is, therefore, a source of useful knowledge.

Another type of useful knowledge is that which helps the reader solve his personal problems. The high school at Julian divides all English and social studies classes into two groups on the basis of ability or achievement level. In the lower level or "B" group, the instructor directs student reading along the lines of inspirational stories concerning achievement under handicaps. Although the college preparatory or "A" group stresses a more formal approach to literature, the planned program of "reading for personal guidance" illustrates a concept that might benefit students at all ability levels. The point is that the materials to be read can be related to the learner's needs and purposes.

---

[1] Although this school was not visited in this project, it is a participant in the Catskill Area Project in Small School Design.

At the Marietta Johnson School of Organic Education we observed members of an English class reading Shakespeare's "The Merchant of Venice." Actually, they were not merely reading the play; they were performing it. Students had been assigned to the various roles and they were, for the moment, Shakespeare's characters. They were going through the same procedures that any cast follows on the initial reading of the script: they were discussing the roles and the interpretation of each. As a result, in the process of acting they were learning about human nature and human problems as Shakespeare perceived them. Their task, defined prior to the reading of the play, was to answer this question: "What kind of a playwright would Shakespeare be in mid-twentieth centry America? Would his plays resemble those of Maxwell Anderson or would he be more likely to remind the audience of Tennessee Williams?" In their efforts to answer this question, students had to dig beneath the surface of both classical and contemporary drama and extract their full meaning in terms of increased human understanding.

The study of poetry presents similar teaching problems to those posed by the study of drama, in that both litarary forms were intended to be heard, not read.

To the teachers in Vernonia poetry is, in fact, the "music" of literature. Hence the students' first exposure to poetry consists of listening to the instructor reading poetry. Following this, students take their turns at reading poetry to the class and eventually creating poetry of their own. The instructors begin with humorous poetry with rather simple construction and simple content and gradually move into more serious content and more complex styles. The initial purpose is to help the student overcome his dread and "fear" of poetry. Once this is accomplished, the instructors direct the student's attention to the content (meaning) of the poetry and the elements of it which cause him to like or dislike it. Throughout the study of poetry, the emphasis is on meaning rather than on technical form.

Because both poetry and drama are intended to be heard, and hence to be read aloud, it is important for students to learn that one does not have to be a professional actor to enjoy reading either of these two literary forms. Nevertheless, his interest can be more easily aroused, perhaps, by hearing well-read renditions. Many fine recordings are on the market, and their use serves two important purposes: first, good performance will enhance the student's appreciation, and second, good performances will serve as models for the student's later active participation. Their use requires the availability of such equipment as disc and tape recorders and players, a well-stocked library of tapes and discs, and earphones for individual or small group work. The individual use of such audio devices in isolation from other students, while of considerable value to the learner, will not substitute for the sharing of listening experiences with other students under the guidance of a competent instructor, nor will it substitute for the active participation in reading-aloud activities.

The English teacher at Simla takes a rather unique approach to the teaching of literature. By extensive use of paper-back editions of both standard and modern literary selections, the high school provides individual copies of a wide variety of works for its students; in the class, students are grouped into reading groups of three to five members, representing a wide range of abilities and achievement levels. (The assumption here is that the below-average student can learn from the better student while the better student learns from explaining to the slower one.) Each group will read a different selection, all members of a given group having individual copies of the paper-back edition of that particular selection. For example, one group may be reading Silas Marner while another reads Tale of Two Cities. The groups spend part of the class time reading and part of the time discussing what they have read. When a group has completed a particular selection, it will discuss that before the entire class. Typically, during any given class period some students will be reading while others will be discussing in small groups.

While Simla has made no attempt at "ability grouping" for instruction in literature, other schools have divided their English classes into two groups, the slow-learning or low-ability group and the "college preparatory" group. In the sophomore English class at New London, for example, the slower group uses the English 2600 series published by Harcourt-Brace which is essentially a programmed text in literature. Each student works at his own speed and takes the examination when he has completed a given unit. The higher-ability group will be spending its time reading an assigned novel (e. g., Silas Marner), each student again working individually and completing a written assignment based on his reading. Students in this group are free to discuss their ideas and reactions before completing the written assignment.

The high school at Ottawa Hills has met the challenge of the "gifted" by providing an honors reading program, in addition to the regular English class. The program, open to juniors and seniors, carries 1/4 credit per semester and stresses college-level reading. It is extra-curricular in the sense of meeting out of school time, and the teachers who direct it do so on a volunteer basis. For example, at the time of our visit, the art teacher was covering the history of Russia before 1800 and required the reading of six books including one or two by Dostoevsky; six students were taking part in this class. The history teacher was directing a group of three students who were studying about Benjamin Franklin, reading from such selections as Van Doren's biography of Franklin and Franklin's Essays. An English teacher was directing a group of students in the reading of modern European fiction, such as the works of Sido-Colette, Gide, Proust, and Kafka.

The Indian Springs High School proceeds on the assumption that all literary forms can be most profitably studied with reference to their content. Thus, instead of separate units on the short story, the novel, the essay, the drama, and poetry, the program stresses the reading of all forms whenever their content relates to the specific ideas under consideration. The school has gone further than the mere correlation of English with social studies; it has developed a basic-studies program running through all grades on a block-of-time basis. (A three-hour block at the ninth and tenth grades and a two-hour block in the upper two grades characterize the scheduling of this program. A two-teacher team for each grade has complete flexibility in planning the use of this time.) The underlying theme of this program is "Great Ideas," stressing a knowledge of the life of civilization and of the ideal man in society from the point of view of the Hebraic-Christian and the democratic tradition. The source of knowledge for this program comes from the organized knowledge of the social studies and the humanities, with special emphasis on history and literature. The teachers emphasize the discovery of contrasts between the actual and the ideal in the realms of values, individual maturity, and the basic needs of man and society. Thus all literary forms--short story, essay, poetry, etc.--can be brought to bear on a given idea or problem when they have relevant content. This approach to literature can effectively demonstrate to the student the value of each form as a source of usable knowledge as well as personal satisfaction.

Expressing Ideas

In the face of increasing attention to creative writing and the frequently heard demand for "more writing, ever more writing," the high school English teacher might well lose sight of the basic questions: What kinds of skills do what kinds of students need to express their ideas? What kinds of ideas, for that matter, do students have to express? Any program which emphasizes communication skills (both speaking and writing) while ignoring the content of such communication is bound to miss the mark. As indicated above, the basic studies program at Indian Springs stresses the development of significant ideas worthy of communication, so that students have something important to speak or to write about.

Other schools have similarly found workable approaches to the integration of communicating skills and content. Vernonia, for example, has a two-hour combined English I-World Cultures course for the lower ability group in the ninth grade. Because of the students' limited attention span, the instructor provides a constant variety of learning experiences. During this time, through the use of oral reports and panel discussions, he helps students develop informal speech skills. He recognizes, however, that mere speaking by students does not lead automatically to improvement; that comes only as a result of both instructor and student appraisal and criticism of reports and other presentations. This approach, of course, benefits students at all ability levels.

In the same way, students learn to improve their writing by responding to criticism. At Vernonia, students learn various technical forms by writing in imitation. The instructor will read samples of similes or metaphors, for example, and then ask students to compose their own samples in imitation of the style which they have just heard. Students also gain ideas from the literary selections which they are reading, and these ideas lead to the development of paragraphs or themes. There is no uniform requirement in this school that all students write a prescribed number of themes per week or per month. Rather each student is encouraged to advance from mastery of various sentence patterns to mastery of paragraph construction. The sequence continues through two- or three-paragraph themes or precis to full-fledged essays or research reports. All students in these English classes write, but not the same type of exercise at the same time. The primary requirement is that all writing must be purposeful from the student's point of view. If students are to write extensively, the English classroom should contain a writing laboratory in which students will have access to typewriters for carrying out their writing assignments.

In Julian the English teachers stress oral communication with the lower ability groups, utilizing the methods of the Toastmaster Clubs. Students engage in a minimum amount of writing. The so-called college preparatory groups, on the other hand, receive less instruction in speaking and more emphasis on formal writing. They must write critiques or reviews (not the standard form of book report) on each of the eight required books which they read during the year. In addition, mastering successively the techniques of paragraph construction, precis writing, outlining, and exposition, they do considerable formal writing, revising all first drafts until they have met the instructor's criticisms. Although the kind of writing and speaking which is appropriate will depend, at least in part, on the students abilities and interests, most if not all students need competence in both forms of self-expression.

The small size of classes need not limit the educational program, and instruction can profitably be provided on an individual basis. Death Valley High School, for example, has one student enrolled in English IV. She does most of her work on an individual study basis, the instructor spending a minimum amount of time supervising her activity. Scheduling such a class certainly presents no problem.

SOCIAL STUDIES

High schools seem to take the social studies curriculum for granted: All students should have one year of American history plus something called "citizenship," although schools are devoting increasing attention to world history, world geography, government, and "problems" courses of various types. In spite of the similarity of course titles from school to school, however, we probably have less agreement on specific purposes and specific content for the high school social studies program than we have on any other part of the total curriculum. For this reason, perhaps, we tend to group all students together in a 30 x 30 classroom, give them a single textbook, and conduct our question-and-answer game, dissatisfied with the results but seeing no satisfactory alternatives.

If any high school is going to offer a truly comprehensive program in social studies, the minimum offerings would have to include at least four years of sequential instruction. Because of the crucial importance of social studies to all students, the subjects in this area should be designed to reach students with a wide variety of ability. This is not an area in the curriculum where we can afford to be selective in the students who will be taught, nor can we be satisfied with transmitting isolated facts. We must reach the majority of the students with some basic concepts, understandings, and a working knowledge of our political and economic system in such a way that it does make a difference in their daily lives.

For a social studies program to approach this ideal, it must be designed to reach the whole spectrum of high school students in a way that most of them have never been reached before. Without doubt this will require multiple class teaching in small schools where the division is based upon ability and comprehension rather than subject matter. To accomplish this the social studies teacher must learn from the science, language, and mathematics teachers to employ tapes, records, and other teaching devices. The content must be reviewed to form a course of studies rather than a series of isolated subjects. One social studies expert has commented that about 50 per cent of most social studies programs should be discarded, and the balance taught well. This is an area of the curriculum where we have been reluctant to make necessary choices.

Obviously a school cannot teach the history of mankind from the ancient world to the age of space, and do it well, let alone develop some concepts and understanding of our modern political, social, and economic systems. And yet, it is equally obvious that we should not let students who do not continue their education leave high school without some basic concepts relating to the society in which they live.

The nature of the choices to be made seems obvious, but they are difficult ones to make. First we must cover the history of the political, social, and economic systems of our country and other modern nations. After this we can turn our attention to earlier developments. Probably most historians will shudder at the thought of not offering European history, the history of Greece and Rome, and the earlier period in the Near East, but the question must be raised that--given one period a day for six years (7 through 12)--what will we teach?--everything poorly? or the more essential elements well?

We can approach the development of a unified social studies program and make the choices in what we will teach in a number of ways. One approach is to discard such courses as world history and ancient history. Of course this will leave a void which will never be filled by students who do not continue their education, and probably for a great many who do, unless an effort is made to include some of this material in other courses.

Another approach calls for the organization of an integrated six-year social studies program (grades 7-12), with each year in the program based upon a unifying theme. Thus, for example, grade seven might stress "New World exploration," thoroughly studying the exploration and colonization of both North and South America and considering the implications of these lessons for colonialism in our day. Grade eight might then emphasize "The founding of the New World Nations," with particular focus on the evolution of the "American way of life" and the establishment of American institutions prior to the Civil War. During both of these years, students could direct special attention to the developments in their home states.

In grade nine, students would learn about "Modern European cultures," studying especially the concept of cultural differences and the processes of institutional change. In grade ten, these lessons would be reinforced through the study of "Modern Asiatic cultures." Grade eleven might emphasize the emergence of "the United States as a world leader" and the domestic problems which have accompanied this period of our nation's history. Finally, in grade twelve students would have the necessary fund of knowledge and understanding to study profitably "contemporary problems" to which the basic concepts of psychology, sociology, economics, and political science have relevance. An elective alternative to this theme might be "the history of political thought"--i. e., the evolution of political philosophy from Plato to the present.

At each grade level in the Indian Springs school, the program is taught by two teachers, one of whom specializes in English and the other in the social studies. This teaching team uses the allotted time in a very flexible manner, the specific uses varying from day to day and from week to week. On some occasions one teacher may use the entire block, while on other occasions both teachers will be working with individuals and small groups. At the ninth and tenth grade levels the teachers stress group procedures, while in the upper two grades they rely quite heavily on the lecture method of presentation as a transition to college teaching methods. Lectures are presented, however, to seminar-type classes.

The basic framework of the program has already been described.[1] In teaching about the history of various cultures, the instructors have called in specialists in music and art to show how these two kinds of human activity have affected, and reflected, the lives of peoples. For example, a music teacher demonstrated various musical instruments in use during the early Renaissance--playing music composed during this era explaining how this music related to the life of the times, and describing the part music played in society. Thus students have an opportunity to learn how music and art have functioned in the life of man and how art forms vary from ethnic group to ethnic group. Primary course content, however, draws from the humanities and social sciences as they relate to man's understanding of man and of society.

---

[1] Supra, English Section. Page 10.

The citizenship education program at Schenevus distinguishes between two groups of students--those planning to meet the requirements for the Regents' diploma (the regents) and those not planning to do so (the non-regents). Both groups are taught by the same instructor at the same time using different textbooks. The instructor spends roughly one day per week lecturing, one day conducting recitation with the entire class, and three days working with students individually or in small "ability" groups. This general format would apply equally well to any organization of course content in the social studies.

The high school at New London has a course in "contemporary problems" which stresses individual reports. All class lectures and reports (both individual and panel-type) are tape recorded, and these tapes are then made available for individual review by students at their convenience. Such a program requires listening areas which are available to students throughout the school day. An adaptation of this procedure (with teachers developing tapes in advance) could make instructions available to advanced students for conducting independent research, reducing the frequency for teacher conferences, and thus conserving on teacher time.

The social studies teacher at Coral Shores High School works with his classes almost entirely in small groups. The room is equipped with circular tables, each seating about half a dozen students. The small groups follow detailed assignments and complete them cooperatively. The Coral Shores experience indicates that such groups do not interfere with each other and that "noise" presents no problem. The groups can conduct themselves in as much isolation as the several quartet tables at a bridge party.

Julian High School has found that this small group technique does not work satisfactorily, however, with low ability students. And here we confront squarely the basic conflict: grouping vs. non-grouping. The small group technique might have maximum value in a relatively heterogeneous class, with members so assigned that each group represents a wide range of ability (similar to the arrangement in English at Simla). With rotation of group chairmanships and frequent (perhaps weekly) briefings of group leaders with respect to their responsibilities and leadership techniques, this pattern could conceivably benefit students of all ability levels. The slower student could learn much from listening to more sophisticated students, and the group leader could gain much substantive knowledge, as well as leadership skill, by helping other students learn to express their ideas. The small group procedure will not, however, substitute for informational lectures in particular or teacher guidance in general. In other words, the techniques of multiple-class teaching can be applied to social studies in order to reach all of the students.

Perhaps none of these approaches offer the perfect solution to our problem of teaching social studies to everyone so that it makes a difference in how they behave, but they do recognize the problem and represent possible answers. The crucial first step has been taken--the realization that all is not well in the area of the social studies: Columbus does not need to cross the Atlantic three times during every school child's career!

FOREIGN LANGUAGES

The foreign languages typically offered in small high schools include Latin, Spanish, French, and German. Many of the schools visited offered only one language (most often Spanish), although several schools offered at least two languages, usually including Latin. Some of the schools, however, offered three languages. Given the teacher or teachers who can teach the languages, it seems entirely possible for a small school to offer three languages for four years if classes are properly scheduled and the equipment and facilities are available.

The crucial point is not how many or what languages are offered, but how extensive the offering in the languages taught. A good foreign language program should achieve at least the following objectives:

(1) develop skills in listening, comprehending, speaking, reading, and writing the language;
(2) contribute to the improvement of the student's use of English;
(3) develop the ability to learn a second foreign language;
(4) develop some understanding of the traits of the foreign culture.

If the first objective is achieved to a great extent the rest of the objectives will also be achieved, but it is crucial that the instruction be continued in a foreign language long enough to achieve these objectives. Two years of instruction as it is currently offered allows sufficient time only to teach either listening and speaking skills or skills in reading and writing the language. If the teacher uses the aural-oral approach, the students should be able to understand the spoken language and to speak it; if they study in the traditional manner, the students should learn to write and read the language. The most obvious observation is that one does not know a language until he has acquired all these skills --i. e., until he can understand, speak, read, and write it.

In addition to this, however, if the language is to improve the student's use of English or aid in the learning of a second foreign language, common elements of the language must be stressed, that is, the grammar and logic of languages. The conversational approach to foreign language omits this aspect of language unless the instruction is extended beyond two years. In other words, one could question the wisdom of offering any language at all if the offerings in that language are for less than three years. Four would be preferable.

An example of the type of program that can be offered in a small school is taken from Julian High School. This school offers three years of Spanish. In the first year classes, the instructor begins the course by talking in Spanish, teaching the students number concepts in that language. After the first quarter of the first year, no one may speak English in the Spanish class except by permission. All activity in the first semester of first year Spanish is oral, and for the most part it is in Spanish. Students do no reading until the second semester. The grammatical approach to Spanish is started during the second semester of the second year. In the third year the students read Spanish literature, have informal conversations, and develop a basic understanding of Spanish grammar.

Offering a variety of languages or even one language over an extended period of time is complicated by the problems of obtaining the teacher or teachers who are capable of offering more than one language, scheduling the classes so that a number of years of instruction in a given foreign language can be offered, and scheduling the classes so that the students who are interested will have the time available for the study of a language over a period of years.

The problem of obtaining qualified teachers should become less acute in a few years. In the meantime some small schools have found at least temporary solutions (and in many instances, because of lack of funds, permanent solutions) to the problem of supplying instruction in foreign language without having fully qualified teachers. An example of one type of solution was found in Meridian where a lady from the community teaches German with the aid of correspondence courses. Of course, the use of tapes and recordings could be combined with teacher presentations and the correspondence course to give even a richer program. Jenkintown utilized college students from nearby Beaver College to teach Spanish in the elementary grades. These students are language majors who are training to be teachers. Two schools, Port Gibson and Hansen, are using high school students in advanced language classes to teach foreign language in the elementary school. Both schools provide for twenty minutes of instruction twice a week throughout the grade school. At Port Gibson these activities are scheduled during the high school students' study hall, and the students use records with native speakers as the main method of instruction. At Hansen the time is taken from the students' regular foreign language class period. The students prepare a lesson plan before the class and write a brief review after the instruction period. The following is a sample of the lesson plans:

"Lesson 2"

Linda DeMoss
Feb. 3, 1961

"I. Objectives

A. to review idioms from last week
B. to introduce the numbers from one to ten
C. to introduce the colors
D. to stress pronunciation

II. Procedure

A. first of all, I introduced Sherry as their other Spanish teacher.
B. from here we quizzed the 4th graders on the old idioms they learned Tuesday.
C. then we introduced the numbers from one to ten, using our fingers as a tool.
D. we taught then how to add numbers in Spanish.
E. last, we introduced five colors and tried quizzing the children with colored paper; meanwhile we stressed pronunciation.

III. Tools: colored paper

The lesson was received enthusiastically. I found a few uninterested, but most were eager to learn. I realize we will have to keep reviewing a great deal."

In both of these schools the high school students who were teaching were under the supervision of the foreign language teacher, and the grade school teacher remained in the room during the lesson in Spanish. This approach not only offers one solution to the problem of lack of qualified teachers, but it also offers a practical solution to the problem of scheduling. Furthermore, teaching elementary classes provides very valuable experience for the high school language students. If such a program could be successfully carried out over a period of years, the students will have a background in a foreign language by the time they enter high school that would enable them to gain greater mastery of the language in the four years in high school or obtain the present level in four years.

The problem of scheduling the classes for the small number of students who require advanced training in foreign language is being met by multiple classes. The most dramatic example of this that we observed was in the Franklin Central School. One teacher was offering instruction in Latin, French, and Spanish to three different groups in the same room at the same time. In addition the students were progressing at different rates in each of the three languages. Three boys were taking Spanish--one was on page ninety-five, one was on page fifty-one, and one was on page forty-eight in the textbook. From what we could observe and from all other indications (such as standardized tests), students were learning as much (if not more) in this teaching situation as one would expect them to learn in a conventional foreign language class. The teacher never deals with the class as a whole, but she does work with the individuals and groups who are taking a given language. She makes extensive use of tapes and recordings, both commercially produced tapes and her own tape recordings. The students use the tapes as they are appropriate and are tested, not at arbitrarily scheduled times, but at various stages in their development.

This form of multiple teaching was observed in some of the other small schools that were visited. In some schools the combination was of two or three levels in the same foreign language, while in others two foreign languages were combined.

SCIENCE

The minimum science program in a small high school should include general science (required of all students), biology (required of all students), chemistry, and physics. Chemistry and physics would be electives, but a choice of at least one of these would be desirable for all college-bound students.

Geology, or earth science, would be a desirable addition to the curriculum, allowing those students who are not planning to follow a scientific or engineering program in college to take additional general science.

One science teacher with the proper preparation can teach the entire program outlined above. The minimum amount of preparation (as outlined by Robert Lewis, formally a high school science teacher in Aspen, Colorado, and now a consultant on science education) would consist of: (1) training in chemistry to include qualitative analysis and organic chemistry; (2) introductory physics; (3) introductory geology; (4) a year of general biology including invertebrate zoology, comparative anatomy, embryology, genetics, plant or animal ecology, and plant taxonomy.

An advanced science course might also be offered, such as the senior project course at the Indian Springs School in Alabama. This course would be oriented toward biology, but it would involve less classification and laboratory dissection of dead animals than the typical high school biology class, and it would stress the life processes and living organisms. The focus of the senior project course would be on the study of biological processes and on the investigation of the effects of various chemical phenomona on those biological processes. As indicated by the title, this course would be taught by the individual project method, and each student would be free to follow a fairly individualistic course of study.

It would be entirely possible to offer such a course with even less structure and allow each student to identify the problems or areas in science that he would like to pursue. The success of such a course would require that the students complete biology, chemistry, and physics before their senior year. This could be accomplished by allowing the more advanced and scientifically talented students to take biology instead of general science in the ninth grade.

Most small schools can offer such a comprehensive with one well-trained teacher through multiple-class teaching. Nevertheless, in some schools a program that includes earth science and/or a senior project course would require more than one science teacher. The second teacher could teach a combination of science and mathematics, or the two teachers could teach all science in grades 7-12. Such a program, of course, requires space for individual experiments which extend over a period of time.

The methods of teaching science in small high schools vary considerably. The minimum program relies on correspondence courses, film series, or television classes where the students have no laboratory experience. An example of this type of course is in operation at Greenfield, Oklahoma. The chemistry class is based upon a televised film series and a correspondence course. Questions are answered in a workbook as the film progresses, and the lessons are sent to Oklahoma City Schools where the television program originates. The Oklahoma

City Schools provide standard tests to the participating schools. Students have no laboratory practice.

Other schools have provided desirable laboratory experiences by stressing the individual project method of teaching science. This does not necessarily mean that each student goes off in his own direction, doing things which have no relationship to what the rest of the class is doing. In Aspen, Colorado, for example, students may engage in a variety of different experiments, all of which are appropriate to learning a particular concept. Some are simpler than others, some require more student initiative than others, and the instructor helps each student plan an experiment most valuable for him in terms of his level of understanding. As a result, no standard or fixed experiment is carried out merely because the workbook outlines experiment "F" as the appropriate one to follow lecture "F."

At the Indian Springs School, the laboratory work throughout the four year sequence of science courses is regarded as an inherent part of training students in scientific thinking. For example, the 9th grade course is an introduction to physical science. One year the instructor began the course by asking the students to consider various theories of the evolution of the universe. Class discussions were based upon the problems the students had identified as a result of their reading. This problem of the evolution of the universe constituted the basic theme of the year's work in the 9th grade course, although daily class discussions frequently sidetracked and went off on meaningful tangents, only to come back to the basic theme after those tangential problems were largely solved. Early in the course, this discussion and comparison of the various theories of the evolution of the universe led to the topic of the transformation of the elements and to the problem of how scientists can identify an element. The first experiment which these students did involved the study of densities and the comparative properties of various metals in an effort to answer this question of how unknown metals can be identified.

The basic approach of the instructor was to ask this question of the students: How can you determine something? The students in the class constructed instruments for the measurement of various properties of these unknown metals and plotted their measurements on graphs. Since this approach introduced the students to certain mathematical concepts, the science and mathematics teacher worked closely together to coordinate the activities taking place in these two instructional areas.

Throughout the sequence, the students use the laboratory to solve problems which have become meaningful to them and which they have identified on the basis of their reading, and on the day of the visitation, no two students were dealing with the same problem or were conducting the same kind of experiment, although all of their activities related to the basic underlying theme.

The senior problems class described earlier provides another example of this approach to teaching science.

Between the two extremes--no laboratory work and the individual laboratory experience--lies a wide range of programs. Many schools, for example, use the various science series of lecture films to supplement classroom instruction and laboratory work.

Since maximum values accrue when science courses stress laboratory experiences, this field lends itself to multiple-class teaching. Many combinations are possible. Any two of the following could be taught at the same time--chemistry, physics, biology, and the senior problems course. Probably some of the more basic courses, such as general science, could also be offered in some combination with other science courses, although the general observation on the success of multiple-class teaching suggests that a combination of advanced courses is more desirable because the students in each advanced course are more mature and hence require less direct supervision from the instructor. In the Andrew Draper High School in New York, however, the instructor divides the regular general science class into two separate groups on the basis of ability. This program requires only half of the laboratory equipment and space that would be necessary if he taught the class as a single unit.

MATHEMATICS

Mathematics programs in small high schools should serve three types of students: (1) those with high aptitudes for mathematics who will go on to college and work in related fields, (2) those with a liberal-arts orientation who will also go to college but follow a course requiring only a limited working-knowledge of mathematics, and (3) those students with low aptitudes for and/or little interest in mathematics. The last group consists of both those who will go to college to study fields completely unrelated to mathematics and those whose formal education will end either before or upon completing high school. In any event, the mathematics education of the last group normally ends at the ninth or tenth grade level.

Some schools of small enrollment find the task of educating all three of these groups an insurmountable one. Many schools, however, which were visited during this study--through effective scheduling and instructional techniques--are meeting the mathematical needs of these three groups in an adequate, if not superior, manner.

For example, in Evadale, Texas three senior boys with special aptitude for mathematics were studying trigonometry by correspondence from Texas University, working in a room during a class in plane geometry. The class period is eighty minutes long. The instructor devoted the last fifteen or twenty minutes to supervising the three trigonometry students. During that time, the geometry students were working on their assignments for the following day.

In Tallulah Falls, Georgia two boys were studying advanced mathematics one hour a day, five days a week, under supervision of a mathematics teacher. The teacher spent the hour largely in supervising individual study. In many schools, these two students would be assigned to a study hall this hour; and the teacher, while performing approximately the same activities--namely, grading papers or preparing for future classes--would be enjoying his daily conference or work period, or what many refer to as an "off-period."

In the Indian Springs School we observed a very unusual method of meeting the needs of gifted mathematics students. A class in plane geometry was writing its own textbook as it progressed through the year. The teacher was stressing the nature of symbolic logic, deductive reasoning, and logical proof, and was using geometry as a vehicle for teaching logical thinking. In addition to the normal class work, each student is required to work on a full year's project, which must be selected by Thanksgiving of each fall. The instructor approves the project on the basis of both its mathematical significance and its significance for the individual student's growth. The facilities of the science laboratories and shops are made available for spare-time use by the students working on these projects. They receive help from the instructor whenever needed.

An excellent method for handling all three levels of mathematical abilities was exemplified in a beginning algebra class in New London which was divided into three groups taught at the same time. The group of highest ability was using the manual from the School Mathematics Study Group copyrighted by Yale University.

(The School Mathematics Study Group is supported by the National Science Foundation.) The students in this group were working independently, receiving only minimum assistance from the teacher. The second group was using an algebra text plus parts of the previously mentioned manual. The third group used only the text; the teacher concentrated his efforts on this group. This example illustrates a basic premise underlying multiple-class teaching that more mature students can achieve satisfactorily with only a minimum of teacher direction.

nnnn In Vernonia all students are tested for mathematical achievement at the end of their junior year. Those falling into the lower third are required to take a review course in mathematics during their senior year. This practice benefits not only those students with a low aptitude for mathematics who plan to attend college, but also for those who need refresher training before going directly into employment.

Care must be taken, however, to insure that the proper combinations are sought in multiple class teaching. John Schenk of McClave, Colorado--a participant in a meeting of Rocky Mountain Area Project teachers at Colorado State College on May 8, 1961--noted that while certain multiple classes in mathematics operated smoothly, others were unsatisfactory. He indicated that students in such introductory courses as general mathematics, elementary algebra, and geometry, on the whole, require more teacher-attention than do students in the more advanced courses like advanced algebra and trigonometry. Therefore, he suggested combining one of the former groups with one of the latter. He has found the following combinations to be very satisfactory: (1) algebra I with algebra II, (2) geometry with trigonometry, (3) general math with trigonometry, and (4) algebra II with geometry. On the other hand, he has found these combinations to be unsatisfactory: (1) general math with geometry and (2) geometry with algebra I.

This concept was substantiated by the schools at Evadale, Jenkintown, and Beardsley. A mathematics teacher at Jenkintown recommended the combining of geometry and trigonometry, while the school at Beardsley found the combination of algebra I and general math to be unsatisfactory. A teacher at Kern Valley High School had previously experienced a very satisfactory combination of advanced algebra and trigonometry.

The question is often raised concerning the effectiveness of an instructor teaching different mathematics courses to two or more groups in the same room at the same time. One good response comes from the students themselves. The Lind High School has such an arrangement. The day of our visit three girls were working on geometry, two boys were taking trigonometry, and five or six students were studying advanced mathematics in a multiple-class situation. The girls taking geometry made the following comments: "We like this arrangement--we are ahead of the students in the regular geometry class because we can go as fast as we like." "Sometimes we have questions when the teacher is busy with the other groups in the class, but usually we are able to work it out for ourselves, and we find out that we really did not need him after all." (One of these girls started to take geometry the previous year but thought that it was too difficult.) This interview took place while the instructor was talking to the group in general mathematics. He was using the chalkboard to illustrate some problem, and the two boys taking trigonometry were in another corner of the room, seated at two students' desks facing each other, comparing answers on some problems.

ART

The art program should be designed to serve two functions: (1) it should be a part of the general educational program where all the students in a school can develop some basic skills and appreciations in art; and (2) it should offer a special program to develop the abilities of certain students who have an interest and some ability in art. The general education in art usually extends up through the eighth grade. The art program in the upper grades of high school is elective and designed to serve the talented and/or interested students. The value of art as a part of general education could be extended in many instances if the art teacher had some time to serve as a resource person to other teachers in the high school. For example, when the biology class is ready to start sketching specimens, the art teacher could spend a period demonstrating the use of appropriate materials and various techniques. The same kind of instruction could be made in the geography class in relationship to map work.

Small high schools which have art programs usually employ only a part-time art teacher. In some schools that we visited, however, there was one art teacher for all grades--kindergarten through the twelfth. In very few cases did we find a full-time high school art teacher. The high school art teacher at Jenkintown, for example, supervises art in the elementary school. In any event, one half day is probably a sufficient amount of time to provide an adequate program in art for the seventh through the twelfth grades in most small high schools. The most difficult problem is in scheduling the art classes so that the students who are interested are able to enroll for the course. This problem can be solved in two or three ways.

Art is a subject that is particularly well suited to multiple-class instruction. That is, during any given class-period the teacher can have students who are working at various levels and on different projects. For example, at Franklin Central School the art teacher had one class in which four or five students were working in ceramics, three boys were taking mechanical drawing, and one senior girl was working on an oil painting. This kind of pattern was observed in other schools with different combinations of activities. In addition to this kind of arrangement some art teachers allow advanced students to enroll for art any period of the day when the art teacher is in the room. The teacher may have a class of seventh grade students during a period and one or two seniors who are working on individual projects, as at Jenkintown. The advanced students receive instruction and help from the teacher when they need it; otherwise they work independently.

The art teacher at Kohler uses this scheduling arrangement to good advantage, and, in addition, the students are permitted to enroll for art for one, two, three, four, or five periods per week, depending upon their schedules. These students receive credit for art according to the number of periods per week which they have scheduled.

The extent of the activities in the art program will be determined by the interests and skills of the art teacher and will, in turn, dictate the kind of physical facilities needed. The activities typically have included drawing (pencil, charcoal, crayon), painting (water and oil), sculpturing with clay, making paper mosaics, linoleum block printing, weaving, plastic cast work, wood burning, crafts (leather and art metals), photography, and ceramics. In addition to these activities, some art programs have included the study of art history. Some take field trips to art museums; other schools make extensive use of film strips showing the work of Michelangelo to illustrate the use of distortion.

The use of multiple teaching and scheduling practices implies that adequate space must be provided so that a variety of activites can be carried on in the room at any one time. Movable furniture and equipment are desirable whenever possible. Also a pull-curtain is important in a multiple class for separation of space so that filmstrips or 16mm films can be shown to a small group while the other students continue their regular activities. These curtains would not necessarily have to be acoustical barriers; because, according to the teachers who have taught in such situations, sound is not a distracting influence after the students become accustomed to it. The art instructor at Franklin High School sometimes lectures to one group without distracting the others who are working in the class. He commented, "My talking to one group does not bother the others. They seemed to have learned to tune me out."

Of course, the student's exposure to art does not need to be restricted to the formal experiences of the art class. In fact, to make its optimum contribution to general education values, it must function in the daily lives of students. This can hardly be left to chance. One way to accomplish this end is to relate the study of art to the study of people and culture, as described in the section on social studies.[1]

Perhaps the most obvious way to introduce art into daily student life, however, consists of designing esthetic school buildings. The Wilbur School in Washington uniquely illustrates the use of esthetic design for educational purposes: not only does the design provide an environment of beauty in which students learn, but it also enables art to contribute directly to the students' moral and intellectual development.

This two story building is centered around an elementary court and a high school court. The art work on the second floor overlooking the court is designed to teach "basic object lessons." Each picture or screen portrays a statement that the board members hope the children will remember throughout life. The elementary school screens (in the elementary court) illustrate Benjamin Franklin's proverbs in a colorful way--"A penny saved is a penny earned;" "A bird in the hand is worth two in the bush;" "Little strokes fell great oaks;" "He who falls in love with himself has no rivals;" etc. The high school screens illustrate the five basic divisions of knowledge. For example, one says, "The real democratic American idea is not that every man is on a level with every other, but that every one shall have the liberty without hindrance to be what God made him." The designs are carefully executed in order that they may contribute to the lessons. They were cast in liquid plexiglass by Artist Harold Balazs.

---

[1] Supra, Social Studies Section, Page 4.

MUSIC

High school music programs typically stress performing groups, especially bands and choruses. Although some schools have introduced general music or music appreciation courses as general education requirements, and others offer courses in music theory and counterpoint to a select few, the common practice is to develop performability on the part of those students with musical talent and to conduct rehearsals in preparation for public performances. The underlying assumption is that students will learn to appreciate and understand music by performing it. A second purpose, of course, is to raise the community's cultural level through these public musical performances, and one must certainly consider this in appraising the worth of performing groups as such.

The small high school, in particular, faces several crucial problems in planning even a traditional music program. First, it must employ competent music teachers and then schedule their time so that they can make an efficient contribution to the school's total educational program. Second, it must schedule its classes so that those students who want music and can profit from it can take it without having to sacrifice important academic courses. Third, it must plan a program which genuinely meets the educational needs of both students and community at large. Such a program will not necessarily parallel the marching bands and 100-voice choruses of the large high school.

Many small schools have solved the first problem, that of securing competent personnel, by initiating cooperative arrangements with other schools for sharing such teachers. Meridian, for example, in cooperation with two other schools, operates such a joint program. Similarly, Evadale has entered into an agreement with a second school for joint employment of a music teacher. Such arrangements enable the small school to employ competent music specialists and to obtain full value from their talents, avoiding the common practice of assigning the music teacher to English or any other subject which happens to need a teacher.

The Coral Shores High School recently developed its music program from a very small beginning. Before the school could employ a teacher, it first had to demonstrate the value of a music program to both students and the community. It made arrangements with a teacher-training institution in the area for the services of a student teacher. Initially, the student teacher worked with small groups of students, developed their abilities to sing part-music, and gradually raised their interest level in music. Next the student teacher introduced instrumental music, again working only with individuals or small groups who wanted to learn how to play musical instruments. The students' enthusiasm carried over into the community, and eventually parents began donating musical instruments to the school. Today the school has a full-fledged vocal and instrumental music program, taught by full-time competent instructors. The instructors have the opportunity to work also with elementary school children, thereby raising the level of accomplishment of entering high school students and providing a basis for the continued improvement of the high school program.

In many instances, particularly in the isolated areas, students enter high school with almost no musical background. Indeed, of the ten boys who enrolled in chorus at Julian High School for the first time in 1960, only two had ever sung anything before. The sparsity of population has, in practice, ruled out any sort of private instrumental instruction at any level, and so this high school has limited its program to vocal music. The instructor introduces the various singing groups to music by having them learn high school pep songs and progressing to patriotic songs, folk songs, and eventually to standard choral works. The main challenge in this sort of situation is to help students overcome their fear of singing together.

Other schools, however, have discovered ways to increase the level of musical knowledge and ability for entering high school students. In Port Gibson, for example, the music teacher has developed a program of private instrumental lessons in the elementary school. About midway through the year, after the students have acquired basic performance skills, the instructor organizes them into small ensemble groups for beginning instruction in band.

Similarly, the music teachers at Tallulah Falls offer private instruction in voice, piano, and various musical instruments for any student who desires it. In addition, by means of programs televised from the University of Georgia, the elementary school students receive instruction in music appreciation.

Any school which simply desires to raise the cultural level of its student clientele by helping them learn to enjoy singing good music can well emulate the program at Julian. A school which wants to provide its students the opportunity to develop performing ability, both vocally and instrumentally, might well consider the manner in which Port Gibson and Tallulah Falls have provided private instruction at the elementary school level. Certainly the school which serves a community that has no private music teachers faces a void which can be filled.

Regardless of the purpose of the music program--whether to develop performing groups or to simply enhance the community's level of cultural appreciation --students can profit from the opportunity to hear good music performed by professionals. Music which is well performed is more likely to develop appreciation than music poorly performed, and hence such listening experiences can, even without systematic instruction, extend the student's musical horizons. At the same time, of course, professional performances serve as models for the student performer. Performing groups, therefore should have the opportunity to hear their music played and sung by artists.

Another way to bring good music to the students is to take advantage of FM radio stations. At Simla, Colorado the musical programs from an FM station in Denver is broadcast through out the school over the public address system into all study halls and into some regular classes on request from the teacher and students. About a week after the school started broadcasting the music a group of students asked the administrator to either give them popular music or turn it off. The administrator turned it off and three days later the students asked to have the music turned on--that was three years ago and the music is still turned on.

BUSINESS

Traditionally high school business education programs have stressed vocational goals, especially those of preparing girls for jobs as secretaries, bookkeepers, and office clerks. Hence they have included two- or three-year sequences in typewriting, shorthand, bookkeeping, and (in more elaborate programs) office machines. Today's trends toward increasing mechanization and automation of clerical procedures, however, have raised serious questions about the need for so many courses in this field. In addition, and perhaps as a result of these trends, authorities in business education have recently focused attention on the general education values of business courses.

From these corollary conditions--decreasing need of highly specialized courses and increasing emphasis upon general education outcomes--two tendencies in business education at the high school level seem to be emerging. First, schools are showing greater interest in such courses as general business or consumer economics to provide all students with an understanding of our American economy and its contributions to our daily lives. Furthermore, schools are recognizing the personal use values, for most if not all students, of such basic-skill courses as typewriting,and shorthand.

Second, schools are merging advanced courses in typewriting, shorthand, and bookkeeping into courses in office procedures. These clearly serve vocational ends, and students who enroll in them are expected to achieve at least minimum levels of competence required for successful employment. In the more forward looking programs, some students will have two or three years in "office procedures" classes to attain maximum skill development.

In all skill courses, whether for personal or vocational use, instruction must be individualized with reference to the student's level of proficiency. Beginning typewriting, for example, will be taught the same way whether students are seeking to develop vocational competence or are simply seeking to acquire a skill which they can use in typing personal letters and term reports. Because of this necessity for individualizing instruction, the successful operation of a business program will depend not upon the size of the student body but rather upon the efficient scheduling of student and teacher time.

Many small high schools have solved this scheduling problem by applying the multiple class concept. In Jenkintown, for example, typewriting and office practice are simultaneously scheduled in two rooms separated by a glass partition. The smaller of these rooms contains office machines, and the larger one contains the standard equipment and supplies for typewriting instruction. The small number of students enrolled in the office practice class run through a variety of activities which include completion of the Twentieth Century office practice set, one to three weeks on each of several office machines (Monroe calculator, Burroughs adding machine, ten-key machine, electric typewriter, dictaphone, and various items of duplicating equipment), activities in filing, and a three- or four-week review of bookkeeping.

The instructor efficiently allocates his time by showing each student in this class how to operate one of the machines and getting all students started on the office practice set. When the individual student has completed his assigned project on one machine, he goes on to another machine, showing the next student how to operate the machine he has just left. Thus, for example, a student who starts out operating the Monroe calculator will, after one or two weeks, show the next student how to operate the calculator and will in turn learn how to use the dictaphone from the student who began with that. Thus the instructor provides instruction and demonstration on each of the machines but only at the beginning of the year and on an individual basis. He of course provides assistance to those students who require it from time to time, but for the most part he relies on students to tutor one another in the use of machines. While the office practice class is taking place, he is providing instruction in typewriting for a larger group of students.

In a similar manner, the business teacher at Elkton assigns office practice students to machines on a rotation basis, allowing students to instruct each other and furnishing demonstrations and assistance when needed. Such a procedure not only represents efficient use of teacher time but also economical use of equipment and facility.

One problem which many schools face is the clerical burden imposed upon teachers. Providing secretarial services to teachers constitutes one way in which business students can gain much valuable practical experience. The office practice students at Jenkintown, for example, participate in a secretarial club which meets one day each week during the activity period. The student-secretaries meet with the teachers to whom they are assigned on a designated day and carry out the work given to them during the Tuesday activity period.

Evadale High School, with a total enrollment of sixty-eight students in 1960-61, offers bookkeeping and shorthand as a multiple class. At the time of our visit, six students were taking bookkeeping and four were studying shorthand. The teacher provides dictation for the shorthand students via tape recordings; while the students listen to the dictation with the aid of earphones, she gives instruction to the bookkeeping students. Tests indicate that these students are improving as rapidly as did students in previous years studying under traditional teaching methods.

At Port Gibson, the business teacher conducts classes in shorthand and office practice at the same time, using two rooms separated by a glass partition. While students take dictation from tape recorders (permitting varying speeds of dictation), the instructor gives direction to the office practice class in a room equipped with typewriters and other office machines. The room used for shorthand is equipped with large work tables which also accommodate bookkeeping classes. With this room arrangement, the shorthand students can easily use the typing room for transcription if the instructor so desires.

The business facility at Tallulah Falls is divided into three units by the use of two glass partitions. One end room is used for shorthand, and the other end room accommodates typewriting and bookkeeping. The central room houses the business machines. Activities can take place simultaneously in all three rooms under the supervision of one teacher. The use of various sizes of furniture, to accommodate individual differences in the physical sizes of students, constitutes a unique physical feature of this facility.

Tallulah Falls plans to move in the direction of pre-recorded dictation which students can use at their own rate of speed as part of a new core course in business. Scheduled in a two-hour time block, this course would include advanced typewriting, advanced shorthand, and office machines. Students would participate in a variety of activities on a rotation basis. The machines room will operate as a laboratory where students will work individually with a minimum of teacher supervision, similar to the plans now in operation at Jenkintown and Elkton and described above.

Several schools have permitted students to pursue advanced courses on an individual study basis, either by signing up for correspondence courses or by completing assignments under the direct supervision of the teacher. At the time of our visits, for example, the business teacher at Jenkintown was supervising a correspondence course in advanced bookkeeping, and the teacher at Powers had two students taking this subject as an individual study, doing their work in the library or in the high school office.

HOMEMAKING

In most high schools, probably, homemaking programs have transcended the traditional emphasis on cooking and sewing. Girls continue to receive instruction in the skills of sewing, of course, but these skills are then applied to problems of tailoring, fashion design, personal grooming, and home decoration. Similarly, girls usually learn how to cook, but this knowledge is related to problems of nutrition and meal-planning, budgeting, and entertaining. Beyond these two fundamental areas, considerable emphasis is placed upon home nursing, child care and development, home maintenance, and the personal relationships involved in family living. The underlying purpose is to produce efficient and capable homemakers, not simply cooks and dressmakers.

Nevertheless, the problem of how to organize effective learning experience for both beginning and advanced students of homemaking plagues many small schools. The traditional concept of one semester of clothing and one semester of foods in each of three or four sequential courses just does not work efficiently in the small school. Furthermore, in many communities the public opposes large expenditures for instruction in cooking in view of the meal-preparation methods employed by many housewives today.

The instructor at Powers took a realistic approach by asking the girls to assume that they were going to marry and have the problem of managing a home on the average income of Powers residents ($4, 500-$5, 000 per year); in response, the students developed plans for spending this yearly income, specifying the kinds of homes which this income would enable them to operate and maintain. In the process of solving the basic problem, the students studied insurance, banking, installment buying, budgeting, meal planning and preparation, grocery shopping, child rearing, and wardrobe planning. The basic skills of foods and clothing preparation took on new meaning, and the general approach helped girls acquire more realistic attitudes toward marriage.

The high school at Vernonia provides real life experience in child care and development through a preschool nursery which the homemaking classes operate each spring during the afternoon hours for one week. During a six-weeks period each year, the homemaking and agriculture students exchange facilities and instructors. While the girls are gaining practical experience with hand woodworking tools (furniture repair and refinishing), the boys are studying etiquette, good personal grooming, preparation of breakfasts, and patio cooking. Each year also a local electrician instructs the girls in principles and techniques of electrical repair and home lighting.

Regardless of such improvements in content and teaching method, however, the problem of scheduling facilities and students remains acute in the small school. Those schools which have efficiently solved these two scheduling problems have two characteristics in common. First, the facilities are multi-purpose rooms, such as those at Tallulah Falls, Port Gibson, Jenkintown, and Kohler. The single room includes a fitting area, a living-conference area, a kitchen area or several kitchen units, and work tables and sewing machines. The homemaking room at Port Gibson for example, is a multi-purpose room with a living center at one end and no walls separating it from the rest of the room.

Second, the teachers have taken an experimental approach, using the homemaking room as a homemaking laboratory. The beginning classes move from one unit of work to another--the typical approach but perhaps having different groups taking different units at any given time while advanced homemaking students work independently on numerous "experimental" projects. For example, Tallulah Falls girls may work on their projects during any spare time, even while other classes are in progress, and the advanced students (homemaking III and IV) work almost entirely on an individual basis. Similarly, at Jenkintown the senior high students may be working on some units with a minimum of supervision while junior high classes are studying other phases of the program. Several units actually are taught at the same time (e. g., interior decoration and clothing), the advanced students engaging in more individual study or experimentation with only occasional conferences with the teacher.

During the time of our visit to Port Gibson, an advanced student was making a spring wardrobe at the same time that the regular section of ninth grade homemaking was in progress. This advanced student checked with the instructor once a week on the progress she was making on her particular project. The teacher emphasized the need to be selective in enrolling students on this kind of basis, but with proper selection she felt that beginning and advanced students could satisfactorily work in the same room at the same time on similar kinds of activities.

Girls can learn a lot about dietetics, nutrition, and foods preparation without personally preparing every recipe in the book. A given procedure may be demonstrated for the entire class by one or two students, and then the other students may practice this procedure in their own homes. Throughout the year, every girl would have a chance to demonstrate one or more cooking techniques, and all girls would follow these demonstrations through home projects, but all girls would not have to make biscuits at the same time. A program of this type would require a considerably smaller investment in equipment and space, would increase utilization of existing facilities, and could enhance the total learning process.

Indeed, the more varied activities which occur at the same time, the more "home like" is the homemaking laboratory or center. A few students experimenting on their individual projects need not interfere with the ongoing activities of class instruction, and in a functional program project work will be individualized anyway, requiring a minimum of group demonstration and a maximum of tutorial assistance and individual teacher-student conferences. That effective instruction can take place in the midst of a wide range of performance levels and a great variety of learning experiences has been amply demonstrated by the high schools at Kohler, Tallulah Falls, Port Gibson, and Jenkintown.

In addition to teaching general homemaking, Tallulah Falls provides its girls with training in institutional cooking and banquet serving. Since this is primarily a residential school, most students eat three meals per day prepared in the school kitchens. The girls in the school prepare these meals and all girls perform various tasks assigned on a rotation basis. Any school which has a lunch program can provide useful training in this manner.

INDUSTRIAL ARTS

Increasingly throughout the country, industrial arts programs seem to face the challenge of lessened student interest and heightened public skepticism. In part this results from today's emphasis (extreme, in the opinion of some observers) on science and college-preparatory mathematics and the accompanying public clamor that "all students must prepare to go to college." In even greater part, however, this challenge stems from the public image of the kind of program which most schools offer--a collection of hobby-type activities and an opportunity for boys to go into competition with the furniture industry. To meet this challenge successfully, industrial arts teachers (as well as school administrators and other educators) must take a fresh look at the purposes which industrial arts education should serve.

The kind of industrial arts program which a high school offers depends, of course, upon these purposes. If the school is concerned only with developing certain basic skills in the use of various tools and equipment, the program will consist mainly of project work--e.g., the making of end tables, leather billfolds, and electric motors. If the school desires to go beyond this and develop basic understanding of the world of industry and of industrial processes, using project activities as means of illustrating the application of these processes, students will do more than manipulate saws, lathes, and soldering irons. Finally, if the school desires to prepare its students for specific skilled occupations, the program will require facilities and equipment which will enable students to have experiences comparable to those they would have on the job in industry.

Few high schools in the country have found that they can efficiently offer specialized vocational training, partly because of the unpredictability of the occupational opportunities which their students will have, partly because of the rapidly increasing mobility of their student populations, and partly because of the tremendous expense involved. Perhaps the state of Pennsylvania has found a practical solution to the problem of providing terminal vocational education at the high school level. That state has designated certain school districts as sponsors of area trade schools. Each sponsoring district conducts the particular type of trade school assigned to it, and districts which send students to these trade schools pay tuition charged by the sponsoring district. The Philadelphia school system, for example, operates an area farm school serving the students in the Philadelphia metropolitan area. Students who attend these schools go to regular academic classes for half the day and spend the remaining half of each day in technical training in a particular trade. The typical high school industrial arts program in that state can, therefore, ignore the vocational objectives often associated with industrial arts education.

In any event, we have visited no small school which attempted to provide terminal vocational education of a highly specialized nature. In states which do not have some provision comparable to the Pennsylvania plan, this objective is probably ignored in practice. This leaves the first two purposes mentioned above--i. e., the development of mechanical skills and the transmission of knowledge about industrial life in our nation. Few industrial arts programs that we saw in operation have gone beyond the first stage of development, although some have recognized the inadequacy of projects as ends in themselves. The teacher at Gale-Ettrick High School, for example, takes his students on field trips to industrial establishments in the area and also shows numerous films which describe various industrial processes. The teacher at Port Gibson begins each semester with two or three weeks in the classroom in which he presents information about the world of industry, attempting to demonstrate the relevance of subsequent shop activities to our industrial economy.

The school which desires to attain the general education value of industrial arts will organize its program around a study of American industry and manufacturing processes, tracing the development from crude handicrafts through the successive stages of assembly line production and mechanization of industry to contemporary automatized procedures. Activities in the shop will be planned to complement the basic study program, those activities being selected which will best illustrate the application of industrial principles to the solution of production problems. This type of program requires the opportunity for students to plan and execute manufacturing projects in the fields of woods, plastics, metals, electronics, graphic arts, and power mechanics. Since projects must be designed before being produced, students must receive instruction in mechanical drawing (or drafting) and blueprint reading. This type of program does not rule out the development of basic technical skills, but it does integrate the skills training into a comprehensive study of American industry. This probably represents the most extensive industrial arts program which the typical "comprehensive" high school can offer efficiently.

Generally, however, even the outstanding schools we have visited emphasize the development of skills (and the making of projects) rather than industrial education as described above. Typically, these schools offer one or more of the following industrial arts subjects: mechanical drawing, woodworking, electronics, plastics, leathercraft, metals, and power mechanics. The actual selection of courses, in practice, probably depends upon a combination of student interest, instructor interest, and the district's financial limitations.

Some schools have begun such skill-development programs in the elementary grades. Kohler, for example, offers "shop" one day each week to fifth grade pupils, two days per week to sixth graders, and daily to junior high students (grades 7-9). For senior high students, industrial arts courses are elective.

The chief obstacle to a comprehensive industrial arts program in the small high school is probably the traditional concept of scheduling: that is, that the various types of activities such as woodworking, metal working, or electronics must be scheduled as separate classes. A more fruitful approach, however,--and probably sounder from an educational standpoint--consists of scheduling an individualized general shop program throughout the school day. The Port Gibson program follows essentially this concept.

There, students begin each semester with two or three weeks in the classroom during which they study about industrial processes generally, concentrating on those processes which they will later be exploring in the shop-laboratory. In the shop, students engage in a variety of activities on a rotating basis, so that on any given day some will be working with woods, others with metals, and still others with electrical apparatus. During the course of a year, all students will receive beginning instruction in all of these areas.

With such a general shop background, advanced high school students can readily undertake individual projects, working alongside beginning students with a minimum of teacher supervision. They do just this at Jenkintown where senior high students use industrial arts facilities during the time when junior high classes are scheduled, working primarily on their own. Talullah Falls, in fact, has found that students can acquire basic skills in the crafts without any formal instruction and a minimum of teacher supervision; there students use the equipment and facilities of the crafts room during their free periods or during any other time when they are not studying, and the older, more mature students with two or three years of previous experience instruct the younger students in basic techniques. Thus, as in the business programs of Jenkintown and Elkton, advanced students are able to effectively extend the influence of the teacher staff.

At the time of our visit at Kohler, two boys were completing a project started at the beginning of the year. They had built an electric generator, starting with their own design. In developing this design, they had learned much about the basic principles of drafting. Following the design stage, the students made all of the required parts, finally assembling them into the finished product. This kind of independent project work--which "forced" each student to learn all of the skills normally associated with industrial arts programs--characterized industrial arts education at Kohler. Because students worked primarily on their own--with help, direction, and guidance from the teacher when they needed it--scheduling classes presented no problem. Any student in any grade could take industrial arts during any period of the day.

Once a school accepts the initial premise that a variety of activities can take place simultaneously in a general shop setting, with students of various levels of maturity and accomplishment participating at the same time, it has prepared the way for a laboratory approach to industrial education. This simply implies that out of their study of industrial processes, students identify problems (with appropriate teacher guidance) which can be solved in the shop-laboratory through individually-designed projects. The application of various skills to specific projects will be directly related to the study of industry, however, if the school desires to achieve maximum general education value. This approach resembles the underlying philosophy of the science program at Indian Springs, described elsewhere in this report.[1]

Such a program enables the instructor more fully to meet individual needs by helping each student with his unique learning problems. At the same time, it enables the school to offer a comprehensive industrial arts program through efficient scheduling of both student time and equipment. Obviously the less mature and/or less skilled students require closer supervision, and students admitted to advanced "individual-study" programs perhaps should be required to demonstrate competence and maturity. Indeed, the Gale-Ettrick high school does require students to qualify on a safety test (with a score of 100 per cent!) before they can use power tools. At the same time, it does not permit students to "run loose" in the shop; on the contrary, it requires all senior high students (grades 10-12) to present plans before they can begin their shop projects.

---

[1] Supra, Science Section, Page 3.

In these ways the small high school can "afford" to offer a comprehensive industrial arts program. Such a program requires a general shop area (rather than a specialized shop for each phase of industrial arts) containing ample room for students to move around and work on individual projects; in close proximity to the shop is a classroom or study area where the instructor conducts basic classes on industrial processes, use of tools, and shop safety. The equipment and tools can be shared by classes in industrial arts and vocational agriculture; and where climatic conditions permit, much of the project work can be done in outdoor paved area. Power tools can be mounted on wheels so that they can be moved from one part of the facility to another as needed. The industrial arts center at Death Valley High School, for example, includes a small alcove adjacent to the science room where students can work inside; the alcove opens onto an outdoor shop area (equipped with moveable work-tables and power tools) where much of the work takes place.

Up to this point in the discussion, our primary concern has been with a comprehensive industrial arts program designed to serve a group of boys who will take three or four years of industrial arts activities, but there is also a service function that industrial arts can perform. That is to some basic skills to teach college-bound students who will major in science, engineering, architecture, or kindred fields that require some mechanical and manipulative skills as well as academic ability. Engineers and architects need some knowledge of materials. and of the tools and equipment that are used to work with woods, metals, or plastics. The scientist should at least know enough about building and designing equipment and scientific appratus that he can make his wants known to those who build his laboratory equipment. These things are not learned in a science laboratory but in an industrial arts shop.

Such a program presents two problems: first, the industrial arts teacher often does not recognize this part of his function, or if he does he rejects it because these individuals are not industrial arts students. Second, the matter of scheduling becomes complicated because of the conflict between industrial arts classes and the academic classes the students are required to take. This problem can be solved by the multiple-class teaching approach described above and by allowing such students to take industrial arts one, two, or three days a week instead of five and giving credit according to the number of periods the student is able to schedule.

VOCATIONAL AGRICULTURE

In this age of increasingly efficient agricultural production, declining farm employment, and accelerating farm consolidation (with a consequent reduction in ownership opportunities), many high schools throughout the country have witnessed a sharp falling off on enrollments in vocational agriculture courses. Some thoughtful observers have seriously questioned the value of vocational agriculture programs as we have observed them in the past, suggesting that the responsibility for specialized vocational training in agriculture be allocated exclusively to the colleges.

To be sure, if the purpose of vocational agriculture instruction is limited to preparing boys for future careers as farm owners and operators--and if the content is limited to beef judging and corn planting on Dad's spare acre--these critics have a point. On our visits to small high schools, however, we discovered progressive programs and imaginative instructors who have dared to go beyond this limited concept of vocational agriculture by teaching the subject as an applied science.

The outstanding programs we have seen do not limit their enrollments to boys from the farm who can conveniently carry out the farm-home projects required under the federally-subsidized Smith-Hughes program. An emerging trend seems to be placing more emphasis on developing an understanding of agricultural processes and problems (especially those related to marketing and management efficiency), the skills needed for making home improvements, and a basic knowledge about agricultural science. Not only can all boys profit from these sorts of understandings and skills (and perhaps all girls as well, although we have observed no programs which enroll girls as full-time students), but such programs can also provide students with the basic background necessary for subsequent specialized training for a variety of agriculturally-related occupations.

These programs, in other words, stress the general education and pre-vocational values to be gained. They are not geared exclusively to the student who will not go on to college, although to be sure vocational agriculture, like all other parts of the curriculum, must take the needs of this student into account. As one administrator put it, "Many students will go on to college and have further opportunity to learn what we haven't taught him in high school. But for many other students, this may be their last chance at formal education. We have to be particularly concerned with what they may by-pass and be sure to provide for that."

The traditional (and probably typical) vocational agriculture program offers three or four years of instruction, with frequently a two-hour block of time for one or two years during a four-year instructional period. The basic principles of plant and animal production and farm management are taught in a common classroom setting. Students are frequently grouped according to grade classification, so that only one group will meet at one time. The agriculture classroom also serves as the headquarters for the local chapter of the Future Farmers of America.

The so-called practical experiences of the program are provided for in the "farm shop" and on the farm on which the individual student resides. The farm shop in many schools is reserved for the exclusive use of vocational agriculture students, yet careful observation discloses that the kinds of activities taking place in the farm shop do not differ materially from those which go on in any comprehensive industrial arts facility. Students in farm mechanics courses must learn the basic principles and skills of woodworking, carpentry, metals, electricity, and power mechanics. They apply these principles and skills to the solutions of problems usually confronted on the farm; and because many of their projects require large areas, the farm shop tends to be larger than the usual industrial arts facility. Nevertheless, both farm mechanics skills and general industrial arts skills require the same kind of program and the same kind of facilities and equipment. Where enrollments in these programs are small, therefore, the high school can combine its courses in industrial arts and farm mechanics.

The rest of the practical experience typically takes place on the homestead in the form of on-the-farm plant and animal projects, thereby relieving the school of the necessity for providing facilities for this sort of activity. At the same time, however, such programs limit the usefulness of the course to those who live on or have access to farms and can thus carry out such projects.

The ultimate in an agriculture program, perhaps, consists of a school-owned-and-operated farm. The high school in Tallulah Falls has just such a facility. Situated on a 600-acre site, the school operates a dairy, a beef herd, and a hog raising enterprise. In addition to their class work in agriculture science and their shop course in farm mechanics (taught largely as an applied general shop course), all boys in the school have assigned chores on the farm, rotating these duties every six weeks. Thus each boy receives a wide variety of learning experiences in all phases of the farm's operation, including farm management, under the supervison of the competent instructor and resident farm manager.

Between these two extremes--on the one hand where practical agricultural experience occurs on the farm, and on the other hand where such experience takes place on a school-operated farm--several schools have developed programs designed to meet the needs of all boys and to achieve general education as well as vocational purposes.

The Kern Valley High School, for example, has abandoned its vocational agriculture program and has substituted a two-year course in agricultural science, the two sections of the course being offered in alternate years. Thus the beginning course will enroll boys from grades nine to eleven in one year, and the following year the advanced course will enroll boys from grades ten to twelve. All boys take these two courses in sequence. The teacher spends half of each day conducting the industrial arts program. Any agriculture student who requires shop instruction or who needs to use shop equipment for a particular project will have access to the shop during the industrial arts period. This deviation from the traditional offers two distinct advantages: first, all students may receive general industrial arts instruction at the same time, no distinction being made between agriculture and non-agriculture shop students, thereby increasing the efficient utilization of facilities; and second, all boys (town and farm boy alike) can profit from the basic course in agriculture. The school has sacrificed its federal reimbursement in so modifying its program, but in the process it has undoubtedly improved education. It has certainly demonstrated what a small school can do to provide an agriculture program and at the same time make the most efficient use of time and facilities.

Vernonia has a program which provides many unique opportunities for town boys as well as farm boys to study the application of science to agricultural problems right on the school premises. The basic facility consists of the typical classroom adjacent to a farm-mechanics shop; the shop is devoted one period a day to a combined carpentry-general cabinetmaking class and the rest of the day to the agriculture program. A greenhouse standing adjacent to and outside the classroom is used exclusively for agriculture students to carry out experimental projects in soil treatment, seed germination, plant care, and other problems of agricultural botany. (This greenhouse was originally constructed for a total cost of $346.00)

At the time of our visit to the school, the teacher was engaged in starting a two-acre experimental tree farm to be used by the students for the purpose of studying the various factors affecting tree growth. This type of activity is especially appropriate for Vernonia, which is located in the midst of extensive logging operations; but the general principle involved has relevance for schools in any part of the United States. Students in this program carry on individual agricultural projects, but provision is made for those students who do not have access to farms to carry out their projects on the school premises.

Similarly, the high school at Julian offers a broadly conceived agriculture program for the benefit of all interested boys, whether they live on farms or not.

The total curriculum consists of a course in general agriculture, two courses in agricultural science, and two courses in agricultural mechanics. The general course emphasizes basic knowledge about agriculture as a way of life with its attendant economic and political problems. The agriculture science courses, as their title implies, stress the application of science to the problem of agricultural production, while the mechanics courses involve the application of industrial arts skills to farm mechanics. One section of general shop (for boys in grades nine to twelve) is conducted one period each day in the farm mechanics shop.

The instructor stresses the purposes suggested above: a basic understanding of agricultural processes and problems, methods of making home improvements, and the study of agricultural science. Every boy conducts some kind of supervised home project, although not all such projects represent farming-type operations. One student, for example, met this requirement by constructing a patio at home, thereby improving his own home site and fulfilling the spirit of the requirement. At the time of our visit to the school, the instructor and administration were preparing plans for an agricultural science laboratory which will include a greenhouse, hot beds, storage areas, and a three-acre experimental field. This experimental field will include one-half acre of irrigated pasture, an orchard, a place for crop production, and buildings for cattle and sheep. Thus on the school premises students will have an opportunity to engage in more scientifically directed farming operations than many students have through their home projects.

An experimental farm, owned by the school, has been in operation for several years at Greenfield. At the time of our visit there, students were experimenting with different chemical fertilizers on a variety of soil compositions to determine their relative usefulness in crop production. Again, this type of program reflects the kind of scientific training in agriculture which small high schools can provide for all students regardless of their place of residence.

In addition, schools can supervise off-campus work experiences which have considerable educational value. Students at Vernonia perform many services for the school and community, including the repair and construction of school district equipment, which enable them to apply in practical situations knowledge gained in the classroom.

The instructor at Julian also directs a work-practice program: students work for forestry departments, land companies, ranchers, and dairies in the surrounding area. This kind of work-practice experience not only substitutes for supervised farm projects in many instances, but it also affords a greater variety of learning situation than students could otherwise have.

Incidentally, the programs at Greenfield, Vernonia, and Julian all operate under the federally-subsidized vocational agriculture program. All three have found it possible, within the meaning of the Smith-Hughes Act and other relevant legislation, to design broad programs which have both general education and scientific value. One could raise a question about whether such knowledge could be more suitably provided through general economics, biology, and general shop courses. Every school must resolve this question for itself. The fact remains, however, that these schools demonstrate what small schools can do to provide an efficient and educationally-valuable agriculture program. A project type program operated on school premises may not increase the individual student's net worth, but it will result in significant learning.

PHYSICAL EDUCATION

Perhaps the most expensive phase of any high school's program, particularly from the standpoint of facilities, is physical education. The construction of a standard gymnasium requires a minimum capital outlay regardless of the extent of its use or the number of students involved. The way such facilities are used, however, will depend upon the program and this in turn will be influenced, if not determined, by the number of students participating.

Typically, the high school physical education program is planned around such large group activities as tag football, basketball, softball, and volleyball. In a few schools, interscholastic athletics receives the major emphasis, and non-athletes have little or no opportunity to benefit. Because of the high-cost characteristic of such facilities, however, a school can justify physical education programs only if they serve the majority of students in some significant way.

A well-planned program will stress the physical development of the individual and will provide for the acquisition of skills which he can profitably use after he leaves school. This suggests an emphasis upon individual and small-group activities, with those large-group activities which lead primarily to current recreational and entertainment values growing out of the basic program. Most, if not all, of the values attributed to interscholastic athletics can be realized through a carefully planned and supervised intramural program which is often an integral part of the basic physical education program. Thus Coral Shores, 150 miles from its nearest competitor, stresses an intramural program, scheduling only a few basketball

88

games and track meets each year. Similarly, Indian Springs schedules a few basketball games, soccer and tennis matches, but emphasizes an intramural program in tennis, soccer, field hockey, golf, basketball, volleyball, and football. Perhaps a higher proportion of students attain the values of competitive team sports in this program than in the typical interscholastic athletic program which many schools struggle to maintain.

Many schools have found that some highly desirable physical education activities require only a few students and can be satisfactorily conducted coeducationally. Thus Lansing Central High School offers coeducational social dancing, volleyball, and ping pong. Gale-Ettrick High School conducts social dancing, bowling, and "curling." Gymnastics, tumbling, calisthenics, and trampoline are other activities which promote the individual's physical development and yet do not require either large numbers of students scheduled during the same period or elaborate facilities.

The small high school can, in short, provide a sound basic physical education program which stresses individual and small-group activities; it can do this without sports palaces and without scheduling boys and girls into separate classes and without insisting that younger students always be separated from older students.

In addition to the physical activity phase of the program, many schools have launched health education programs as part of physical education. Often these are conducted as simply expedient solutions to the problem of gymnasium scheduling (boys have health while the girls use the gym and vice versa) or the problem of inclement weather (all have health whenever it is raining outside.) Such efforts to teach about health lack cohesion, system, sequential instruction. The Gale-Ettrick High School, however, has a planned program of health education which all students take throughout the four years of high school. Taught jointly by the boys' and girls' physical education teachers, the course consists of four two-week periods scheduled at various times throughout the year in conjunction with the daily physical education classes. This course is not conceived as simply an expedient solution to scheduling problems; rather it is a carefully planned program designed to meet the legitimate educational needs of all students.

Finally, some schools have discovered ways to make their physical education facilities of service to the community of adults. Coral Shores, for example, has organized a men's softball league which uses the school ball diamond one evening each week. Similarly, Elkton makes its gym available to a local women's volleyball league which meets two afternoons each week.

Physical education offers the school an opportunity to make effective use of the talents of local lay citizens. Simla once took advantage of an Hawaiian lady's brief visit to that community by employing her to give trampoline instructions. Gale-Ettrick regularly uses a qualified local citizen to teach wrestling, and turns to local business firms to supervise bowling. Jenkintown has increased the efficiency of staff utilization in physical education--as well as in art and music--by giving the high school teachers responsibility for developing and supervising elementary school programs.

The schools visited have tried various approaches to the scheduling of physical education classes. Mojave has a vertical plan of organization which provides two sections of seventh-eighth grade students, one each for grade nine, grade ten, and grade eleven-twelve. Athletes are excused from the physical education classes, a questionable practice in those schools which have carefully planned physical education programs. Jenkintown schedules all of its classes for two days each week, with boys' and girls' sections meeting on alternate days. Both Evadale and Elkton, however, have found that boys' and girls' classes can be scheduled simultaneously in a satisfactory manner; such scheduling incidentally facilitates the conduct of coeducational activities. If the program stresses individual and small group activities, however, with large group activities being assigned to a carefully supervised intramural program, scheduling presents no problem: both boys and girls of all grades can be scheduled into any period during the day.

Many schools have discovered that various community facilities can be effectively used to enhance the physical education program. Meridian teaches swimming about three or four months of the year by using a city-owned pool during warm weather. Gale-Ettrick conducts its bowling program in a privately-owned bowling alley.

Tallulah Falls has constructed a dressing room building immediately adjacent to the athletic field; this building houses two dressing-locker rooms separated by a gang shower which has access from either dressing room. In practice, whenever the field is used for inter-scholastic athletics, the home and visiting teams are assigned to their respective dressing rooms but use the single shower room jointly. The school's administrators feel that the sharing of shower facilities has promoted increasingly harmonious relations between competing groups of athletes.

Frequently, as in Kohler and Elkton, the gymnasium and auditorium are combined. At Kohler, the locker rooms have been planned so that they also serve as dressing rooms for stage productions. Here the auditorium and gymnasium have been constructed in such a way that the stage can serve as an adjunct to either area. The stage can be completely isolated from both, so that it serves as a separate teaching station, or it can open onto the gymnasium so that it enlarges the area of that facility, or it can open on the auditorium and serve as a conventional stage.

In addition, Kohler has a youth center and swimming pool adjoining the auditorium-gymnasium. The swimming pool, heated during the cold winter months for use by physical education classes, may be converted during the warm spring and summer season into an outdoor pool. The entire complex was jointly financed by the school district, the community of Kohler, and the Kohler Foundation.

Although considerably less elaborate, the school at Elkton has constructed a facility which again applies the principle of flexibility. The stage can be used in a conventional manner, opening onto the gymnasium which can be readily converted into an auditorium. The stage can also be used as a separate teaching station, completely isolated from the gymnasium, and in daily operation it serves as the dining room for the school's lunch program. The Elkton gymnasium is large enough to accommodate two physical education classes simultaneously, and indeed girls' and boys' classes are scheduled for the same periods. No dividing wall or curtain separates the boys' area from the girls' area, however, but school officials report that no problems have resulted from this lack of visual separation.

SUMMARY

In describing the various ways in which some small schools throughout the country have overcome some of the weaknesses of smallness, and indeed capitalized on some of the strengths, we have emphasized two basic approaches to improved curricular organization. One places considerable faith in the ability of the high school student to study independently, with a minimum of teacher supervision and direction. The other stresses more flexible grouping of students, so that several groups may actually engage in different learning activities in the same room at the same time under the same teacher--the concept of multiple-class teaching. The two approaches, of course, complement each other.

For those who seek a panacea, however, a word of caution--and for the skeptic, a reminder that the authors understand fully the importance of good teachers. No merely different way of organizing time--either the time of students or the time of teachers--and no "new" approach to the grouping problem will do much to change educational outcomes unless what happens to the student in the classroom also changes.

The ultimate solution to the problem of improved quality in education, regardless of size of school, must lie in a careful reappraisal of just exactly what it is that society wants the high school student to learn, and then an equally careful. determination of how he can best learn it. If we view the learning process as an orderly sequence or progression of activities, each building upon the one which precedes it and leading naturally to the one which follows it, then learning by the individual student can improve only when the most desirable sequence has been determined for him.

To express any notions about "individual differences," of course, is simply to repeat a truism. Nevertheless, the fact remains that individual students do not cover the same sequence of learning activities at the same pace. On the contrary, they progress at very different rates. And the older they are, the more variation in the rate of progress. Obviously, therefore, the improvement of education cannot lie simply in assembling ever larger groups of learners together for formal instruction. Improvement will come only as teachers in the classrooms throughout the country do better jobs of diagnosing and prescribing for individual students.

In fact, the current push for programmed learning and teaching machines rests upon the premise that much of what the student learns can be made a matter of routine, that students will progress through the routine at different rates, and that teachers can do a better job of "individualizing instruction." As various approaches to automated learning come to the fore, the classroom teacher will find himself increasingly free to guide students into those significant learning experiences which the machine cannot reproduce. This type of change--the only kind of change which will really make a difference in educational outcomes--will just as likely occur in the small high school as in the larger one.

We make no claim that small high schools will ever be as efficient as large ones or that reasonable consolidation should not take place. Given a specified standard of quality in education, the small school will probably inevitably require more money per student to operate than its larger counterpart. Given the willingness to provide the additional resources, however, the small school can achieve that standard--of this we are sure. And perhaps compensating for its reduced efficiency, the built-in flexibility of the smaller organization may provide more opportunity for those with vision to develop improved educational programs.

In the preceding pages, we have described ways in which small high schools have already improved their programs, not only in terms of increased quality but also in terms of higher operating efficiency. As educators generally learn more about how to plan satisfactorily for the individual student, the "magic of numbers" will become less important and some of the skepticism attached to the concepts of multiple-class teaching and independent study will disappear. As a matter of fact, if one views the learning process as primarily an individual affair, then obviously every instance of group instruction is in essence an instance of multiple-class teaching combined with independent study. The fallacy lies not in the concepts but rather in our failure to apply them realistically.

One final comment. So far in this report we have not discussed counseling and guidance programs. This omission does not stem from our lack of concern for counseling, and most assuredly it does not result from the failure of the schools we visited to provide for counseling. To the contrary, every school we visited provided meaningful counseling for its students.

We have neglected to discuss this facet of education in any detail simply because of the prevailing uncertainty in our contemporary society regarding just what high school counseling should accomplish. Should every high school offer complete psychotherapy for the emotionally disturbed, for example? Or should high schools simply provide an opportunity for students to get intelligent answers to questions of concern to them? If we insist on the former, then few high schools--large or small--offer adequate counseling. If we accept the latter as the essential purpose of counseling, on the other hand, then every good teacher in every school we visited conducted an effective guidance program. Perhaps the atmosphere of informality which permeates the smaller school actually affords the individual student more of an opportunity to "feel like a person," thus reducing the incidence of emotional disturbance. In any event, small high schools can provide just as effective counseling and guidance programs as their students require.

Lest the reader infer that we have been attempting to make a case for the small high school or to justify its existence, we hasten to add that our purpose in writing this report has been to express a simple point, perhaps most succinctly stated in the title: small schools can be good schools.

Appendix A

SCHOOLS VISITED FOR SMALL HIGH SCHOOL STUDY:

SCHOOL:	CITY AND STATE:	SUPERINTENDENT AND PRINCIPAL:
Marietta Johnson School of Organic Education	Fairhope, Alabama	
Indian Springs School	Helena, Alabama	
Kremmling High School	Kremmling, Colorado	
Simla High School	Simla, Colorado	
Kern Valley High School	Lake Isabella, California	
New Cuyama Valley High School	New Cuyama, California	
Mojave High School	Mojave, California	
Death Valley High School	Shoshone, California	
Julian High School	Julian, California	
Coral Shores High School	Tavernier, Florida	
Tallulah Falls High School	Tallulah Falls, Georgia	
Hansen High School	Hansen, Idaho	
L & M High School	Lyons, Indiana	
Williamsburg Rural High School	Williamsburg, Kansas	
Jay High School	Jay, Maine	
Beardsley High School	Beardsley, Minnesota	
Port Gibson High School	Port Gibson, Mississippi	
New London High School	New London, New Hampshire	
Franklin High School	Franklin, New York	

SCHOOL:	CITY AND STATE:	SUPERINTENDENT AND PRINCIPAL:
Schenevus High School	Schenevus, New York	
New Berlin High School	New Berlin, New York	
Mott High School	Mott, North Dakota	
Friends Boarding School	Barnesville, Ohio	
New Riegel High School	New Riegel, Ohio	
Ottowa Hills High School	Toledo, Ohio	
Greenfield High School	Greenfield, Oklahoma	
Elkton High School	Elkton, Oregon	
Powers High School	Powers, Oregon	
Vernonia High School	Vernonia, Oregon	
Jenkintown High School	Jenkintown, Pennsylvania	
Meridian High School	Meridian, Texas	
Evadale High School	Evadale, Texas	
Lind High School	Lind, Washington	
Wilbur High School	Wilbur, Washington	
Galesville High School	Galesville, Wisconsin	
Kohler High School	Kohler, Wisconsin	